All the claims of this application stand rejected under 35 USC §103(a) as being unpatentable over the U.S. Patent No. 4,896,064 to Taiani in view of the U.S. Patent No. 4,146,805 to Fehr et al. This rejection is respectfully traversed because both Taiani and Fehr et al. fail to disclose a magnetic coupling device having an input shaft and an output shaft, each with an arrangement of magnets, and a containment shell 5 having an inner sleeve 3 and an outer sleeve 4 that extends between the arrangement of magnets. The inner sleeve 3 is formed from a profile element 7 that extends approximately in the manner of a coil, and the outer sleeve 4 axially fastens the profile element.

The patent to Taiani, the U.S. equivalent to the German Patent No. 689 15 713 referred to on page 2 of this application, discloses a magnetic drive system comprising a prime mover 22 having carrier member 24 with sets of drive magnets 46, 48 and a driven member 28 having sets of driven magnets 50, 52 (Fig.3). A barrier member 54 is hermetically sealed and mounted to housing wall 30 and separates the drive and driven portions of the systems.

The barrier member 54 is slotted, as shown in cylinder 40 (Fig.2) and the tension cylinder 56 (Figs. 4 and 5). The tension cylinder 56 has a plurality of narrow, radially extending, circumferentially spaced apart slots 70 passing through the wall 58 of the cylinder 56 (Figs. 4, 4a, 4b, 4c and 5). Therefore the tension cylinder 56 equates to the outer sleeve 4 of applicants' magnetic coupling device.

Furthermore, the barrier member 54 includes a plurality of annular laminations 78, which are pressed towards the enclosed wall of the barrier member 54 to avoid leakage between the separated laminations 78. These laminations 78 equate to the inner sleeve 3 of applicants' invention.

However, the laminations 78 are clearly <u>not</u> a "profile element" (7) in the sense of the present invention.

The plurality laminations 78 have the disadvantage of requiring numerous components for the inner sleeve.

As explained in the specification of this application, the present invention relates to an improvement over the magnetic coupling device of Taiani. In particular, the arrangement of Taiani requires numerous components for the inner sleeve. In addition to the high manufacturing and assembly costs, the individual core laminates must be

aligned with each other during assembly. In addition, maintenance costs for a containment shell designed in the manner disclosed by Taiani are relatively high because disassembly and reassembly of the containment shell is time consuming.

As pointed out in the specification on page 3, third paragraph, the main objective of the present invention is to provide an assembly-friendly and maintenance-friendly magnetic coupling arrangement that exhibits maximum operational reliability.

The teaching of Fehr et al. cannot be used to achieve this objective. First of all, a person skilled in the art would not combine the two references, Taiani and Fehr et al., because Fehr et al. belongs to a different type of magnetic coupling arrangement. This magnetic drive has only a sleeve as a containment shell 1 and 6, respectively (Fig.1). The known containment shell 6 is one-piece. However, the containment shell according to the invention has multiple parts comprising at least one inner sleeve and at least one outer sleeve, neither of which is found in Fehr et al.

Also, the housing 6 is not a profile element that extends in the manner of a coil according to the invention. In fact the outside surface 10 of the cylindrical part of wall 1 of the housing 6 has grooves of depth f running in the circumferential direction (Fig 1).

The provided grooves do inhibit eddy currents, but the grooves also reduce the mechanical strength of the housing. For this reason, reinforcing elements 12, 14 and 19 are inserted in the grooves (see column 6, lines 19-45).

In contrast, the profile element according to the invention has complete radial separations in the axial direction between each turn of the coil. In this manner the eddy current losses are reduced when compared to a full-metal (one-pice) containment shell and the function of magnetic coupling can be used efficiently without reducing the mechanical strength. As a consequence, reinforcing elements are not necessary.

The mathematical basis of the invention is the "Lenzsche Formula": $V_2=(1/n)^2 \cdot V_1$, where:

V_2= eddy current losses with separation,

V_1= eddy current losses with full-metal containment, and

n = number of turns or sheets.

Therefore, the eddy current losses can be further reduced if more separations or turns are provided over the axial length of the containment shell.

In conclusion, it is believed that applicants' independent claim 1, as originally presented, distinguishes patentably over the combination of Taiani and Fehr et al. This application is therefore believed to be in condition for allowance.

Respectfully submitted,

By ______________________
Karl F. Milde, Jr.
Reg. No. 24,822

MILDE & HOFFBERG, LLP
10 Bank Street - Ste. 460
White Plains, NY 10606

914-949-3100

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